DOCUMENT RESUME

ED 353 137 SE 053 070

TITLE	The 1991 Presidential Awards for Excellence in Science and Mathematics Education. Hearing before the Subcommittee on Science of Committee on Science, Space, and Technology. U.S. House of Representatives, One Hundred Second Congress, First Session.
SPONS AGENCY	Congress of the U.S., Washington, DC. House Committee on Science, Space and Technology.
REPORT NO	ISBN-0-16-037004-3
PUB DATE	3 Oct 91
NOTE	60p.; No. 66. Some pages contain very small, dark, filled-in print.
AVAILABLE FROM	U.S. Government Printing Office, Superintendent of Documents, Congressional Sales Office, Washington, DC 20402.
PUB TYPE	Legal/Legislative/Regulatory Materials (090)
EDRS PRICE	MF01/PC03 Plus Postage.
DESCRIPTORS	*Awards; Educational Quality; *Elementary School Science; Elementary Secondary Education; Federal Government; Government Publications; *Government School Relationship; Hearings; Mathematics Education; *Mathematics Teachers; Science Education; *Science Teachers; *Teacher Attitudes; Teacher Effectiveness
IDENTIFIERS	Congress 102nd; *Presidential Awards Excellence in Science and Math

ABSTRACT

This document presents a transcript of the proceedings of the Committee on Science, Space, and Technology to recognize the recipients of the 1991 Presidential Awards for Excellence in Science and Mathematics Education in elementary school. Along with Walter Massey, the director of the National Science Foundation (NSF), a panel comprised of some of the honorees (Carol Van de Walle, Jacqueline Wilcox, John Donlan, and Jacqueline Goodloe) gave their views about elementary school science and mathematics and related their experiences with the NSF's science and mathematics education programs. The panel also gave recommendations on how Congress could better support science and mathematics education in elementary schools. The topics discussed included: need for material and professional support in elementary school science and mathematics instruction; parent and student attitudes towards science and mathematics; inservice teacher education; and educational innovations. Prepared statements by several participants are included. (MDH)

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THE 1991 PRESIDENTIAL AWARDS FOR EXCELLENCE IN SCIENCE AND MATHEMATICS EDUCATION

HEARING

BEFORE THE

SUBCOMMITTEE ON SCIENCE

OF THE

COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY U.S. HOUSE OF REPRESENTATIVES

ONE HUNDRED SECOND CONGRESS

FIRST SESSION

OCTOBER 3, 1991

[No. 66]

Printed for the use of the
Committee on Science, Space, and Technology

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

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Superintendent of Documents, Congressional Sales Office, Washington, DC 20402
ISBN 0-16-037004-3

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Walter E. Massey, Director, NSF, Washington, DC; accompanied by Jacqueline Goodloe, Burrville Elementary School, Washington, DC; Jacqueline Wilcox, Cannon Ball Elementary School, Cannon Ball, North Dakota; Carol A. Van De Walle, Alwood Elementary School, Alpha, Illinois; and John Edgar Donlan, Chesterfield Heights Elementary, Norfolk, Virginia 14

THE 1991 PRESIDENTIAL AWARDS FOR EXCELLENCE IN SCIENCE AND MATHEMATICS EDUCATION

THURSDAY, OCTOBER 3, 1991

U.S. HOUSE OF REPRESENTATIVES,
COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY,
SUBCOMMITTEE ON SCIENCE,
Washington, D.C.

The subcommittee met, pursuant to notice, at 10:20 a.m. in room 2318, Rayburn House Office Building, Hon. Ray Thornton [acting chairman of the subcommittee] presiding.

Mr. THORNTON. Good morning. I want to thank all of you for your patience in waiting for us to get back from the vote. We will begin now to open the hearings. Other members will be permitted to make introductory statements as they arrive, but on behalf of the members of the Subcommittee on Science, it is my pleasure to welcome officially all of you to Capitol Hill and to offer each of you my congratulations on receiving the 1991 Presidential Award for Excellence in Science and Mathematics Teaching.

George Brown, the chairman of our full committee, has been a leader in this effort, and you are the first group of elementary school educators to receive this award; and therefore each of you has a very special place in history.

The award recognizes your understanding of how students learn science and mathematics. Your very positive attitude in the classroom creates a learning environment that fosters curiosity and generates student excitement, while exploring the subject with innovative hands-on experimental approaches to learning.

For the last three decades some of this Nation's greatest scientific and engineering accomplishments have been associated with the space program. Today, space represents only one of the many frontiers to challenge the talent and imagination of our young adults. We are also engaged in an economic struggle with the leading industrial nations of the world. To successfully compete, we need well educated, technically oriented personnel, with a creative spark that was ignited in the formative years of their education. As parents and legislators, the members of this committee appreciate the personal sacrifices that you have made, taking time from family responsibilities, to add that extra element of quality in your classroom presentations.

At this time, and on the record, I would like to extend a special recognition to Paula Smith, who teaches mathematics in my home State, at the Booker T. Washington Magnet School in Little Rock;

and Debra Susan Linder Ward, who teaches science at the Carlisle Elementary School in Carlisle. Personally, I am very proud of your accomplishments. You serve as a genuine inspiration to your students, colleagues, and the community at large. Your work will provide our young men and women with the technical background and personal self confidence needed to become our Nation's next generation of leaders.

To our distinguished panel, we are anxious to hear your views about elementary school science and mathematics instruction and your experiences with the National Science Foundation's science and mathematics education programs, and certainly we would be pleased to have your recommendations— and this goes to all of you—on how Congress could better support science and mathematics education in elementary schools.

After we hear opening statements from other members of the committee, I will first recognize Dr. Walter Massey, Director of the National Science Foundation. He, in turn, will present and introduce the four teachers who will give their presentations. In the remaining time, other honorees or awardees will have an opportunity to share their views with us.

[The prepared statement of Mr. Thornton follows:]

OPENING STATEMENT
BY THE
HONORABLE RAY THORNTON, (D-AK)
ON
HEARING ON THE 1991 PRESIDENTIAL AWARDS
FOR EXCELLENCE IN
SCIENCE AND MATHEMATICS EDUCATION

October 3, 1991

On behalf of the Members of the Subcommittee on Science, it is my pleasure to welcome you to Capital Hill and to offer each of you my congratulations on receiving the 1991 Presidential Award for Excellence in Science and Mathematics Teaching. You are the first group of elementary school educators to receive this award, and therefore have a very special place in history.

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accomplishments. You serve as a genuine inspiration to your students, colleagues, and the community at-large. Your work will provide our young men and women with the technical background and personal self confidence needed to become our nation's next generation of leaders.

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Mr. THORNTON. At this time I would ask Mr. Fawell if he has an opening statement.

Mr. FAWELL. Thank you, Mr. Chairman. I do.

I would, of course, like to welcome Dr. Massey, who—I make it known to all—comes from Illinois, the University of Chicago, and once again, from the Science Committee, my congratulations to all of the teachers who are gathered here today. It is your commitment and enthusiasm which represents the future of America's scientific base.

I was at Hinsdale Central High School a couple of weeks ago, and there was an enthusiastic teacher of Latin—had nothing to do with science—but he made the statement that "recognition is the nutrition of success," which I thought was very aptly stated.

I think what we're doing here is—I think every teacher recognizes that to give recognition to one's students is awfully important, and that leads them to success, and I think it works also very well insofar as teachers are concerned.

I enthusiastically support the National Science Foundation in all that they are doing to help in the recognition. As Dr. Massey knows, it's my own contact with science teachers in my area—I am convinced that assistance from the Federal Government for the summer programs to help teachers pick up their masters degrees, for instance in science and math, is awfully important.

So I am very excited about this program. I am glad to be here this morning, and I offer my congratulations again, especially to those from the great State of Illinois.

Thank you very much, Mr. Chairman.

Mr. THORNTON. Thank you.

Mr. Browder?

Mr. BROWDER. Thank you, Mr. Chairman.

I am happy today to welcome Dr. Walter Massey and the elementary school teachers who received the Presidential Award for Excellence in Science and Mathematics Teaching. As you know, a State can nominate only six teachers from the elementary school grades. From the six, only one in math and one in science may be chosen to receive an award.

Alabama's two awardees are Linda Kilpatrick Winters of Ridgecrest Elementary School in Huntsville—Linda, right over here, in mathematics—and Terry Kirchler. Terry is moving to her seat back there now—of J.F. Drake Middle School in Auburn, for science.

Terry and Linda, you are the best of the best who are preparing our children to lead us in the next century. You are the power that lights the hope of this Nation, and I am thrilled to be here with you.

Mr. Chairman, I want especially to recognize my constituent, who is here today, Terry Kirchler. Congressman Cramer will be speaking about Linda in just a minute.

I first learned of Terry through her student, Katy Simpson. Katy won a national "Invent America" award earlier this year. Terry, I think the highest praise of a teacher is the achievement of her students.

Mr. Chairman, let me tell you what I have since learned of Terry's achievement. Terry holds degrees in physical education and

elementary education from Auburn University. During her seven years of teaching she has continued to improve her knowledge of science. Terry has attended summer courses in marine biology at Livingston University and in environmental science at Southern Illinois.

In the best tradition of academics, she has shared her knowledge with other teachers, too. Terry is a team member of Alabama's Operation Physics. This three-year-old program, funded by the National Science Foundation, gives teachers the background they need to excite young people about physics. To prepare, Terry earned certification by the American Institute of Physics through a course at San Diego State. Teaching teachers as an adjunct instructor at Auburn University, she has had an impact on at least 200 elementary school science teachers in Alabama.

Terry wrote the text for her Operation Physics course; is in charge of the Young Astronauts Program at her school; and runs the Science Fair and Invention Convention. She was a presenter at the National Science Teachers Association in Texas last year, and will again be a presenter this year in Boston.

Dr. Marlin Simon, who is professor of physics at Auburn University and heads Operation Physics, told me this about Terry: "Every time you turn around, she is trying to make her classroom better. She is trying to make her school better. She is trying to make everybody better."

Mr. Chairman, I am proud to introduce Alabama's elementary school science awardee, Terry Kirchler, to the committee, and I look forward to the testimony of our witnesses today. Thank you.

Mr. THORNTON. Thank you very much. I appreciate that. We will go ahead.

Mr. Cramer?

Mr. CRAMER. Thank you, Mr. Chairman.

I want to congratulate the Alabama winners, as well as you in general. I think an awful lot of what we talk about here in Congress tends to be economic development issues, pretty technical issues; this committee itself is consumed with the demands of the NASA budget and other space- and science-related activities, but we sometimes forget that those who are dedicating themselves to the education of our youth aren't getting much of a helping hand, and we need to help them to help the young people of this country.

I come from the 5th District of Alabama, where Linda Winters is from. Remarkably, just a couple of years ago I visited Linda Winters' class there and got to participate with them, got to be involved in their day there. I came away from there, having been there just a little more than an hour, exhausted, wondering what kind of impact—if any—I had made on their very young lives.

But Linda and her school, Ridgecrest, they are tucked right against Redstone Arsenal. They are in Huntsville, Alabama, a very space-dependent community, and they're doing what we talk about an awful lot up here. They are preparing the youth of today to pursue careers in science and mathematics, and we've got to be innovative and we've got to be creative in that way.

So, Linda, I applaud your work.

Also, I am going to add this little anecdote. Linda and her students helped kick off my campaign for Congress. Now, we had to be

very careful about that; we had to make sure that those young people and their families didn't mind being involved in the political process, but we handled that pretty well, didn't we, Linda?

So it's remarkable that I can see you up here in this world that you helped me get to up here. It's a pretty confusing world at times and a new way of life for me. But I want to thank you for what you are doing, and your husband for letting you do what you do, and Terry Kirchler from Auburn, Alabama. This week alone we had another bright young man from Auburn who was recognized, Nathan Ballard, before the Select Committee on Children, Youth, and Families, so it's been a neat Alabama week up here. Thank you.

Thank you, Mr. Chairman.

Mr. THORNTON. Thank you.

The gentleman from Indiana, Mr. Tim Roemer?

Mr. ROEMER. Thank you, Mr. Chairman. I, too, would like to join in, first of all, apologizing. I have to go back to the Education Committee, where we are marking up the Higher Education Act for monies for colleges for the next four years, so I will be leaving just as soon as my statement is over.

But I did want to come over here. I don't have constituents here. I do have two teachers, Graceann Merkel and Sheryl Jean Braile, from the State of Indiana, that I am very proud of, but I am proud of everybody in this room. This is the Super Bowl of teachers, so to speak, since we love sports analogies in our society. We have got the best personnel, the best teachers, the best students—if we motivate ourselves and if we give the respect to the teachers that they deserve.

I am here to pay that respect to you, coming from a family of teachers and having taught myself. Also, we can learn from other countries. In the German model, oftentimes when somebody walking down the street passes a teacher, they oftentimes bow their head and say "Professor" or "Doctor" as they pass by that teacher. That is the kind of respect that everyone in this room deserves and people back in our districts deserve. You have got the most important and toughest job in this country, and we had better start recognizing that in Congress; not only to award you with these kinds of ceremonies, but day by day making sure that we are in the schools helping out, that we are giving the kind of priority, not just to the football team and the basketball team, but to the Spelling Bees and the Citizen Bees and the debate clubs and the Constitution Weeks.

You keep up your great work. We in Congress are very, very proud to have you here today, and let us know how we can continue to help you. Thank you.

Mr. THORNTON. Thank you very much, Mr. Roemer.

Again, I would like to express my appreciation to the chairman of our subcommittee, Rick Boucher, for the privilege of chairing this. I think the reason that he allowed me to do so was not that I had been here once before as a retread, but because he found out that my two parents had, combined, 81 years of teaching experience in the public schools of our Nation. My dad, with 41, passed my mother's 40 years by one before they retired.

Education is very important to the Science Committee. We are delighted that you are here.

At this time, Dr. Massey, your prepared statement will be entered, without objection, into the record, and we would like to hear from you.

[The prepared statements of Mr. Packard and Mr. Costello follow:]

STATEMENT OF
THE HONORABLE RON PACKARD (R-CA)
SCIENCE SUBCOMMITTEE
HEARING ON THE 1991 PRESIDENTIAL AWARDS FOR EXCELLENCE
IN SCIENCE AND MATHEMATICS TEACHING
2318 RHOB, 10:00 A.M.
SEPTEMBER 26, 1991

THANK YOU MR. CHAIRMAN

I FEEL PRIVILEGED TO BE HERE TODAY IN ORDER TO HONOR THE ELEMENTARY SCHOOL TEACHERS WHO HAVE BEEN AWARDED THE PRESIDENTIAL AWARDS IN SCIENCE AND MATHEMATICS TEACHING. THIS IS TRULY A SUPERB PROGRAM THAT PROVIDES INCENTIVE FOR TEACHERS TO EXCEL AND REMAIN IN THE TEACHING PROFESSION.

THIS IS A WONDERFUL OPPORTUNITY TO RECOGNIZE THOSE TEACHERS THAT ARE OUTSTANDING IN THEIR FIELDS OF SCIENCE AND MATHEMATICS. ALL OF THE TEACHERS SITTING HERE TODAY GIVE SUCH A MAGNIFICENT CONTRIBUTION TO THE NEXT GENERATION AND I WANT TO PERSONALLY THANK EACH AND EVERY ONE OF YOU FOR YOUR WORK.

JERRY F. COSTELLO

Congress of the United States
House of Representatives
Washington, DC 20515-1321

OPENING STATEMENT OF U.S. REPRESENTATIVE JERRY F. COSTELLO (D-IL)

COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY

SUBCOMMITTEE ON SCIENCE

"1991 PRESIDENTIAL AWARDS FOR EXCELLENCE IN SCIENCE AND MATHEMATICS TEACHING"

OCTOBER 3, 1991

Mr. Chairman, thank you for calling this hearing. I am pleased to be here today as we recognize the importance of science and mathematics in the classroom. I would like to welcome the witnesses who are with us today. These teachers are to be congratulated for their hard work and dedication to their students and to their profession.

Today's hearing provides us with an opportunity to recognize outstanding elementary school teachers. I would like to personally congratulate the recipients of the 1991 Presidential Awards for Excellence in Science and Mathematics Teaching that are present today and extend my warmest congratulations to all of the recipients. I am also hopeful that these teachers will be able to provide us with valuable insight about ways Congress can help to improve elementary science and mathematics education.

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Again, thank you Mr. Chairman for calling this hearing and for your continued leadership of this subcommittee.

STATEMENT OF WALTER E. MASSEY, DIRECTOR, NATIONAL SCIENCE FOUNDATION, WASHINGTON, D.C.; ACCOMPANIED BY: JACQUELINE GOODLOE, BURRVILLE ELEMENTARY SCHOOL, WASHINGTON, D.C.; JACQUELINE WILCOX, CANNON BALL ELEMENTARY SCHOOL, CANNON BALL, NORTH DAKOTA; CAROL A. VAN DE WALLE, ALWOOD ELEMENTARY SCHOOL, ALPHA, ILLINOIS; AND JOHN EDGAR DONLAN, CHESTERFIELD HEIGHTS ELEMENTARY, NORFOLK, VIRGINIA

Dr. MASSEY. Thank you very much, Mr. Chairman. It is an honor to be here. I will be brief because you have had an opportunity to hear me before, and you will again.

The real occasion today is, of course, to hear from our awardees, and it is a pleasure for me to be able to congratulate all of them again today.

The teachers are here, as we all noted, because of the significant achievements that they have made throughout their careers. When the National Science Foundation launched this program—along with the White House—in 1983, it was designed to recognize, in a visible way, excellence in mathematics and science teaching. And the program recognizes not only good teaching by honoring the excellence achieved from the outstanding elementary, middle, and high school science teachers, but also we bring the spouses and relatives along with them, which I think is extraordinary and a very good treat for everyone involved.

In the future, these Award Week activities will emphasize the sharing of ideas among all the teachers who have been honored with awards in the past, so that you all can learn from each other. I think that would be quite a significant event, when we bring all of you together.

The NSF has expanded its role in science education, as you all know on this committee, and with your support the 1992 budget for pre-college education is nearly double what it was only two years ago. We will provide over $250 million this year, in the new fiscal year, for pre-college math and science education, which is almost 40 percent of the total Federal effort in this regard.

The teachers here with us today, however, have gone beyond the formalized programs that we support in our efforts, and have found ways not only to teach science and mathematics, but to bring out the fun inherent in these programs. I think that in the time that you will spend with them today, you will see how much excitement they bring to their classrooms just by the excitement they are bringing to their involvement in the activities here in Washington. If we could keep this group in Washington, it would be a much more interesting place to be for all of us, I assure you.

[Laughter.]

Dr. MASSEY. We also need to see a special commitment from parents in these programs. It is very difficult for these teachers to do their jobs without that kind of involvement. So many of our programs are also supporting the involvement of parents along with teachers in schools.

I am also proud to say to you today that the National Science Foundation's commitment to pre-college education goes beyond our formal program, Mr. Chairman. You may be interested to note that

last week we launched, at the Foundation, a program to encourage our staff, many of whom are scientists and engineers, to volunteer for outreach efforts in the public school systems in the Washington, D.C. area. We thought we might attract about 120 volunteers, which would be almost one-tenth of our total staff, and in just one week we doubled that. We have almost 300 volunteers who will be participating in schools. So it is that kind of personal involvement, along with the involvement and commitment of teachers, that will make a difference.

The teachers in this room make that kind of commitment every day, of course, and a single teacher can touch the lives of hundreds of young people. He or she can reveal and communicate the excitement of the subject matter they are teaching, and especially the subject matter and excitement involved in science and technology. Teaching young children in science and mathematics is nothing less than teaching them how to think and how to apply the powers of human intellect to the problems of the everyday world.

I would like to introduce to you these four teachers, Mr. Chairman, who will tell you from their perspective how they feel about science and math education. I know we will come away from these presentations with an even better appreciation of the combination of talent, enthusiasm, and commitment that they have made to their jobs.

In reading about their accomplishments and their letters of recommendation, I came across a few comments, just two that I would like to read.

One says, "She lets science experiences flow seamlessly into other curriculum areas. Her science lessons blend almost effortlessly into language arts, written composition, and mathematics."

The second says, "I can only say that she plants a seed in each student, and as that seed grows, it thirsts for knowledge, and her kids will feed that seed as long as they live, and that seed will one day grow into a well-adjusted, intelligent human being."

And there were many more like that.

So I will stop there, Mr. Chairman, and introduce the members of the panel.

On my right, Carol A. Van De Walle, who is a 6th grade teacher from Alwood Elementary School in Alpha, Illinois.

Jacqueline Wilcox, next to her, is a 5th grade teacher. Mrs. Wilcox teaches at CannonBall Elementary School, which is in the Sioux Indian reservation in Mandan, North Dakota.

Next is Mr. John Edgar Donlan, who is from Norfolk, Virginia, where he teaches at Chesterfield Heights Elementary and is a science and mathematics resource instructor for grades K through 5.

And on the end of the podium is Jacqueline Goodloe, a math resource teacher for K through 6, here in the Washington, D.C. area—in Washington, D.C. itself, in fact. Ms. Goodloe teaches at Burrville Elementary School. So the panel is now yours.

Mr. Chairman, I will apologize. I think my staff mentioned that I have to go to another meeting, but I am going to have Dr. Luther Williams, who is the Assistant Director of the National Science Foundation for Education and Human Resources, join the panel at the table. It is in his area that these programs are operated.

Thank you, Mr. Chairman.

[The prepared statement of Dr. Massey follows:]

STATEMENT OF DR. WALTER E. MASSEY

DIRECTOR, NATIONAL SCIENCE FOUNDATION

BEFORE THE SUBCOMMITTEE ON SCIENCE

SCIENCE, SPACE, AND TECHNOLOGY COMMITTEE

U.S. HOUSE OF REPRESENTATIVES

OCTOBER 3, 1991

Mr. Chairman, members of the Subcommittee, thank you for the opportunity to appear before you today to present the awardees of the 1991 Presidential Awards for Excellence in Science and Mathematics Teaching.

It is a real pleasure to have yet another opportunity to congratulate all of the 108 elementary school teachers in this room for being among this select group of recipients. They have met with Dr. Bromley and now with Congress.

These teachers are here because they are significant achievers. We are confident that they will be agents of change and improvement in education.

In 1983 the National Science Foundation and the White House established The Presidential Awards for Excellence in Science and Mathematics Teaching. Each year, this program recognizes the importance of good teaching by honoring the excellence achieved by four outstanding elementary, middle, and high school science and mathematics teachers from each state. In the coming years NSF will implement a national network of Presidential Awardees to extend and strengthen their interactions with their teacher colleagues. In the future, awards week activities will emphasize the sharing of ideas among these excellent teachers. They will provide opportunities to expand each one's knowledge base.

President Bush has made a commitment to education. Along with the nation's Governors, the President has declared that, "the time has come, for the first time in U.S. History, to establish clear, national performance goals, goals that will make

us internationally competitive." Within the federal government, many agencies have set up programs to contribute to this goal. However, we must recognize first, that the primary responsibility rests with local communities and schools. That is why teachers are so important. Second, cooperation is critical to success. But the Federal government can not do it alone, just as teachers can not do it alone. Rather, we need to foster a personal and professional commitment to education that involves all sectors of society -- government, business, parents and schools. This has been the President's overall strategy: to change the way this country approaches and thinks about education by involving everyone in the process of reform.

At the NSF we have expanded our role in science education. In the FY92 budget, NSF's funding for precollege programs is nearly double what it was only two years ago. NSF will provide over $250 million in this new fiscal year for precollege math and science education. This represents almost 40% of the total federal effort in this area. NSF support will be used for such activities as teacher training, curriculum development, systemic reform efforts at the state level, and support for some 6,000 junior and senior high school students to expose them to the excitement of science and technology.

In the past, this nation has paid far too little attention to the elementary school teachers' role in mathematics and science education. They need to be given the tools and freedom to apply their own ingenuity and intelligence to their jobs. The

National Science Foundation has and will continue to support in grades K-12 the development in grades K-12 of innovative and rigorous programs of instruction in science and mathematics. That will ensure that every child can acquire the knowledge and skills required for effective participation in today's technologically-oriented society.

But the teachers here with us today have gone beyond formalized programs and found ways not only to teach science and mathematics, but to bring out the fun inherent in these subjects. Their ability to light the fire of enthusiasm in their students is one of their greatest assets and is at the core of how we will become successful as a nation. Studies have shown that most children who go on to become scientists or engineers decide to do so in elementary or junior high school. And, most often, the reason they do is because they are exposed to a teacher like the ones with us today. A former student of one of our teachers wrote:

> o "His methods were subtle, relating scientific facts to the realities of living in our world. The results were that we learned about science and nature in spite of ourselves."

We also need to see a special commitment to education from parents. It is very difficult for teachers to do their jobs without it. <u>It is essential that parents become involved in the education of their children</u> -- and this includes special support and appreciation for the teachers. One parent from a rural school environment underscored this notion:

- "We are concerned with whether or not they have as many opportunities in education as larger schools with perhaps better facilities and funding. But then we realize that what really matters is how effective our teachers are in bringing out the curiosity and determination to do well in the students."

another parent commented:

- "She treated the children as capable, clever students, and they responded in kind. I believe that she made a vital contribution to the self-esteem of both of my children."

I am proud to report to you today that MSF's commitment to improving precollege math and science education goes beyond our formal programs. Last week we launched our own local outreach program to bring the science and engineering expertise at MSF directly into the area's elementary and high school classrooms. This program will use our scientific staff to share their excitement and experience in schools in the District of Columbia and surrounding communities.

We set an ambitious goal of recruiting 130 MSF volunteers. That meant that about a fourth of our very busy professional staff would have to sign up. In one week's time, we have a commitment from over 270 volunteer staff members.

It is this kind of commitment at the personal level that is the key to change. As individuals, we make our time and our personal resources available for those things that we feel are truly important.

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The teachers in this room make this kind of commitment every day. A single teacher can touch the lives of hundreds of young people. He or she can reveal and communicate the excitement, grandeur and complexity of science. Teaching young children mathematics and science is nothing less than teaching them how to think and how to apply the powers of human intellect to the problems of the everyday world.

I personally met many of these teachers this week. In a moment, Mr. Chairman, I would like to introduce you to four of them who will tell you, from their perspective, how they feel about math and science education at the elementary school level. [I know that we will come away from their presentations with an even better appreciation of the combination of talent, enthusiasm, and commitment that made them outstanding in the eyes of colleagues, administrators, students, parents, and others who are familiar with their exceptional skills.] In reading about their accomplishments in their letters of recommendation, I have come across comments like:

- "She lets science experiences flow seamlessly into other curriculum areas. Her science lessons blend almost effortlessly into language arts, written composition, and mathematics."
- "I can only say that she plants a seed in each student and as that seed grows it thirsts for knowledge and her kids will feed that seed as long as they live, and that seed will one day grow into a well-adjusted, intelligent human being."

Mr. Chairman, need I say more. Let me introduce:

1. Carol A. VanDeWalle, who is a sixth grade teacher from Alwood Elementary School in Alpha, Illinois.

2. Jacqueline Wilcox, is a fifth grade teacher. Mrs. Wilcox teaches at CannonBall Elementary School which is on a Sioux Indian Reservation in Mandan, N.D.

3. John Edgar Donlan is from Norfolk, VA. where he teaches at Chesterfield Heights Elementary and is a Science and Mathematics Resource Instructor for K-5.

4. Jacqueline Goodloe is a math resource teacher for K-8 right here in Washington, D.C. Ms. Goodloe teaches at Burrville Elementary School.

Mr. THORNTON. Thank you very much, Dr. Massey.

Dr. Luther Williams requires no introduction to this panel. We are very proud of his work and his accomplishments.

We thank you for being here and wish you well in your continued endeavors.

At this time I should like to comment, as Dr. Williams is coming forward, that all members of this panel, without objection, will have an opportunity to enter into the record any opening statements that they may wish to submit. They will be placed in the record at the appropriate point at the beginning of the hearing. There will be opportunities for other people, as well, to submit material for inclusion in this record.

Ms. Van De Walle, would you like to proceed?

Ms. VAN DE WALLE. Certainly.

Mr. Chairman, committee members, I want to thank you for allowing us to be here with you today. It's quite a privilege and honor for us as teachers to be in a House subcommittee.

There are basically four issues that I've listed in my many notes here that we feel that science and math educators are facing today, especially at elementary schools, and I would like to address those now.

We have set some goals. The President has to have our children literate in science, math, and technology by the year 2000; and yet, at the elementary level especially, we find there is a great need for financial resources.

Many of us desperately need real equipment for our students; not just big ticket items—you're talking about computers and fiber optics here, and I'm talking about having funds for purchasing pipettes, petri dishes, stop watches, metersticks, and that type of thing. We've become master recyclers in our elementary schools, using things such as baby food jars and baby vitamin droppers, to supplement what we do not have at this time.

I feel our students deserve and really need real equipment, too, real science equipment. We can make things work by recycling, but we need more than that. I feel this is important for all schools. I see that there is some inequity between urban, rural, and suburban schools. What we need is equal access to all the resources. I really feel that equalization is extremely important because, in talking with people here today and throughout the week, I find that it's very hard to justify that some of us have $50 to $75 to teach everything that we teach for the entire year, and yet I have a good friend who had $300 given to him to buy hamster supplies. He has computers and laser discs, and that type of inequality is very difficult for some of us to understand.

We in elementary education, especially in science and math, really feel that we build the foundation and the enthusiasm and the excitement for children to continue on in science education. Research has shown that if students have not developed this enthusiasm and positive attitudes by the time they are in 5th or 6th grade, they will not select science courses as they get into high school and college.

I'll move on now to another area that I feel near and dear to, and that some of you have mentioned, and that is the professionalism. Raising the standards of the profession is extremely impor-

tant. I think all of us recognize that. Having us here today is certainly an important step forward. Having elementary teachers recognized as part of the science and math awards—this is our second year for this, and I feel that was an extremely big step forward because it has always been just high school people before this. So we are moving in the right direction, but we have a long way to go to make up for the many years that we haven't been recognizing elementary teachers.

Your concern and attention to our views is extremely important and greatly appreciated, too. However, I feel that as salaries are as low—if you look at some of the data that we heard on the range of salaries for teachers, even in this group—that children are not going to want to come into the field of education. They look at teachers' workload. They look at our low salaries, and they would choose the private sector at that time, figuring that education doesn't have the prestige, and it certainly isn't as lucrative as private business.

Thirdly, I would like to talk about assessment. I have worked at the State level for the last six years on State assessment in the area of science. I am very, very concerned that we are moving toward a national assessment. I would urge you to talk to teachers before you ever take any steps that way.

I feel it's going to be absolutely devastating to science if we go into another type of testing. First of all, children are overburdened with tests; but tests also drive the curriculum. That can be good if it moves into the right direction, but the "fill in the bubble" type testing that would have to be done at a national level instead of a hands- on, process-oriented test, we would find would drive our curriculum away from hands-on, experimental type of teaching and instead it's going to drive districts to try to find books for students to memorize facts to fill in the bubbles correctly so that they look good. I really think it would be a disservice to science education, especially if we move into that type of test. Test scores would become more important than the student, and I would not want to see that happen.

[Applause.]

Mr. THORNTON. Let the record show that there was unanimous support for this assertion from within the crowd.

Ms. VAN DE WALLE. And fourthly—and I'm sure you're all glad to hear this is the final point, I wanted to make; I didn't think I could give a few minutes, and then I thought, well, I tend to get a little long-winded, and I apologize for that, but I will carry on—I would also like to urge continued support for the National Science Foundation. Money for the projects that develop leadership and bring about change in the schools is extremely important. They provide in-service summer programs for teachers who wish to develop their skills. The stipends are extremely important because they help supplement salaries, and it basically keeps teachers "off the streets," we could say, in the summer, because many of them have to find, out of economic necessity, other types of jobs during the summer.

The National Science Foundation has played a very important role in my professional growth and I owe a great deal to them. I have worked through several projects funded in Illinois through

the Science Foundation, and because of that, I have written journal articles that I would have never written, thus sharing some of my activities. I edited a book this summer, and it's in the mail. I have developed curriculum. I have developed in-service and pre-service programming, and was able to teach a college course for the first time. I have developed a lot of things for my own students and for other teachers to share with their students.

I have learned to find out where and how to write grants, and I have learned that that is one way I can supplement my meager budget.

I have also learned that I can become a leader, and I've developed a lot of leadership skills through these programs and have continued to be active in my own State, too.

Your continued support and recognition of teachers and the acknowledgement of our success is very important. That was mentioned by one of the gentlemen earlier, that just a pat on the back, some acknowledgement, is extremely important. We'll go back and work even harder now, I'm sure.

Many of the people in this room have mentioned to me that they have gotten personal calls, personal letters from their Congressmen, and I want you to know that I was very impressed by the people who would take the time to find out something about people from their State and acknowledge them personally. I think that's a credit to all of the people who have done that.

Now I would like to leave you with a closing thought that is a Chinese proverb. I have this in a huge banner that is posted in my room. I use it for me and for my students. It reads: "I hear, and I forget. I see, and I remember. I do, and I understand."

Perhaps the best thing you can do for us is to visit classrooms—and I hear some of you have been doing that already; I was very pleased to hear that—go back to your States. Spend a day getting to know and understand education from our perspective. We would certainly welcome all of you into our schools.

Thank you very much.

[Applause.]

Mr. THORNTON. Thank you, Ms. Van De Walle, for your sparkling testimony. It was excellent.

Ms. Wilcox?

Ms. WILCOX. Mr. Chairman, all the members of the committee, I can't tell you what an exciting time this is for me and for all of us. It is a special honor to be asked as one of the teachers to give some testimony. It's just exciting.

I guess one of the things that I would like to do is address some areas of concern that I have, first of all, as we are to become more literate in science and math by the year 2000.

I think the first thing we have to do is change society's attitude about science and math. We do have a poor attitude in this country generally about science and math. If we're going to change that attitude, we're going to do it at the elementary school level. If we can get those kids all excited about science and math, it's just going to carry over.

A lot of the poor attitude about science and math comes from parents. They didn't have a great experience, maybe, in high school or whatever, so they're scared of math. So the first thing the kid

does when they come home and they're all excited about math, is that sometimes they get put down, unknowingly. So we need to go out there and get society going on believing that math and science are important. This poor attitude, if we don't change it, is going to continue on from generation to generation and we're not going to get those future scientists. We already know we're going to be short I don't know how many thousands of scientists by the year 2000. It's going to be critical.

So we need to motivate our kids, and we at the elementary school level really do a good job of getting those kids motivated. We need to find ways to keep that motivation going so that those children will go on and take those higher level math and science courses.

One of the ways that maybe we can address this need is—our classrooms are becoming very overcrowded. When you put 30 students in a classroom with one teacher, and some of those students are speaking more than one language, it's very hard. The teacher is very busy trying to make sure everybody is staying on task. They have to stay motivated themselves, but you need to have ways that you can—you're going to have more students at risk, and that's going to become a larger problem.

I teach in an area where we have many students at risk. Our high school dropout rate is phenomenal. So that is an area of concern that I have, but I know that it happens in all areas of the country.

One of the things that has happened, is our schools have become both the family and the educational base, so we need to find ways to get parents more involved in what we are doing; get our parents back involved in the children's lives; find ways to get them in. And if we have to, bring them in and show them how to make science fun again. I think that we can do that at an elementary level. I know there are many programs out there, and I would like to do that. I think it's fun to see parents get all excited about it and adults to get excited.

Mr. THORNTON. I believe I would enjoy being a student in your class.

Ms. WILCOX. What I am really concerned with is that I am afraid that we're going to end up with a lack of qualified people to even do the technical science jobs. Who is going to repair the computers? I mean, we rely on the computer, but who is going to repair that if we do not produce scientific and mathematics literate children or people? How would you like to get on a plane that somebody has been told that the electrical part of it or the computer part of it doesn't work very well, and they're trying to work through this manual and they don't really understand what they're doing, and they think the have it fixed. Would you want to be on that plane? I don't think I would.

So this is a concern that I have, that it's going to filter down—not only our scientists, but just our whole society as a technical-base society, and we have to produce people.

One of the ways maybe we could do this is by getting a more meaningful curriculum into our schools in the math and science area so that we're not just textbook-based, but finding ways to do it.

I have really had a good chance within the National Science Foundation projects that I've been involved in, and one of the things I'm very proud of is, they link with other ones. I've been involved with AISES, American Indian Science and Engineering Society, as a cooperative effort with NSF. I had a great opportunity to write a book, co-author a book, in a project that they have. And because we got so excited about what we were doing, and as I field-tested these projects, and my kids got so excited about it, I just started volunteering and calling up people and saying, "Can I do a workshop for you? I've got this great stuff and I really need to share it." I just want to get teachers more involved in doing hands-on science, or just finding a way to make kids feel good.

So that's one of the things that I have done. I have just been very motivated.

I do a Science Fair with my kids throughout the school. It's just wonderful to see these kids, their self-esteem, as they stand there and talk about a project that they thought they would never be able to do.

I have had children with severe learning disabilities take a First at a State Native American Science Fair on a science project. The judges would come around and say, "I can't turn them off. They know so much about it. They are just excited."

I have kids that I know—I have two students that are staying in school just because they got turned on to science and they think it's exciting. Or just turned on—they had their self-esteem built up, and that's one of the ways we can do it.

I also like to relate science and math to their everyday life and make it meaningful for them. Working in the Native American society, there is such an interrelationship that needs to be built. All things are connected to the whole, and I really believe this. Everybody needs to see this, that science isn't a book that you take off the shelf and you teach from. It's just part of your life, and it's been used for years and years.

Some of the ways that maybe Congress can help is to continue to fund NSF and their projects, and fund projects that train teachers to become more motivated and to get out there and do this.

I would also like to see some projects that are funded for children, after-hours projects, summer projects, Saturday projects, camps, things like that that will help math and science—a math and science camp. And maybe more direct help to our classroom teachers. Let's cut out some of the administrative costs. Let's get that funding down to where we really need it, where the people can really do something with it.

[Applause.]

Ms. WILCOX. I also believe in her Chinese proverb, and that's right on my door, leading into my closet.

I thank you again for the opportunity to testify.

Mr. THORNTON. Thank you very much, Ms. Wilcox.

[Applause.]

Mr. THORNTON. Mr. Dolan, or Mr. Donlan?

Mr. DONLAN. It's Donlan. It's corrected now, but now my school is misspelled. It's Chesterfield.

[Laughter.]

Mr. THORNTON. Thank you.

Mr. DONLAN. I'm a terrible speller, myself. Thank goodness for technology, with my MacIntosh and the spell- checker. I teach science, not spelling. That's what I tell the children.

[Laughter.]

Mr. DONLAN. I want to thank you all for giving us this opportunity. It is a big deal. We've had about 23 hours and some-odd minutes to prepare this. This is when we were notified, and I'm glad it wasn't earlier because I would have been more nervous than I am.

We are trying to take a little bit different direction with my testimony. I read in the program yesterday—this had my name as "witness," and I said, good grief, what is this? So I'm going to give you a little testimony here today, and we can do some witnessing together, I hope.

[Laughter.]

Mr. DONLAN. I am a resource teacher of pre-kindergarten through 5th grade students at Chesterfield Heights, and I deal with science and math. We are an inner city school. Ninety- nine percent of the children I work with are minority. I guess you would call us your typical inner city, low income type school. I don't know if that's why I was picked to speak today or not. I have no idea why I was picked.

But I know that the American public is flooded with negatives about public education every day, on the television, in the news media, yesterday's headline, USA Today—it was nice getting it delivered right to the room with coffee and everything, I want to thank all of you—

[Laughter.]

Mr. DONLAN.—that was real nice, I liked that—the headlines, "Student Skills Not Good Enough." This is what we see every day.

I say it's time that we stopped telling ourselves that we're failing in public education and start focusing on the positives in public education.

[Applause.]

Mr. DONLAN. To build a successful education system, we need to say that we're doing it right and that we're on the right track. If you tell a child, "You're failing, you're dumb," if a parent tells a child, "You can't do this, you can't do that," that child is doomed to failure and they're going to fail. If you say that about our schools, then we haven't got a chance. We need to start changing our mindset and focus on positive things. I think this would bring on the successes that are needed to accomplish our lofty goals for 2000. I look at my 3rd graders and I have a lot of hope for these children.

I'm going to give a positive example today as my testimony. I know that all of my colleagues here could do something equal, given the resources that I have.

I completed my graduate program in the physical sciences at Old Dominion University in Norfolk in 1990. This program was totally funded by the National Science Foundation. It was great; I had a blast going through this program. It was a year-round program, mostly concentrated in the summer, but we also attended sessions throughout the year.

I have taken what I've learned and I share it with my colleagues every day. At Chesterfield I assist the teachers with the planning,

with any content problems, and at the elementary level we experience content problems quite a bit in science. I help them implement what I call "minds-on science," because you can do hands-on all day long, but if their minds aren't there, it's not going to work. My entire faculty is learning and teaching more science every day.

At the national level, obviously, you need to support this type of teacher training. The concept of the Chesterfield program—it's called "The Innovative Program for the Year 2000." We thought of this before I heard about it in Washington, by the way.

[Laughter.]

Mr. DONLAN. Our goal is to prepare our students to function in the 21st century. Four years ago, the State of Virginia funded this innovative program through a grant, with the belief that all children can learn. We are preparing our children for the future. The initial funding established my lab; I have a great science and math lab at Chesterfield. I get to do all the fun things, the Mr. Wizard-type things, that most teachers don't have the time or the equipment to do. Our successes are well document by our trending upward in our test scores and through various State evaluations.

Two years ago, the Norfolk public school system said this is a good program, and now the local system picks up the tab for running the lab. It's all set up and it's all equipped, so now it's my salary, basically. So there's not a lot of money involved to keep a program like this going once you have the initiative and the drive to begin with. They've kept it going through some pretty tough times. We didn't get raises this year, but my program stayed intact, which was very nice. It felt good.

My students love science. Our school size is approximately 360 students. We have an environmental program that has won State awards in Virginia and the Keep American Beautiful awards for the last two years. We have recycled over 10,000 pounds of glass and over 5,000 pounds of aluminum in two years. We have expanded our program now into plastics. It's tough to get milk cartons clean, and when the milk jugs come in, whew.

[Laughter.]

Mr. DONLAN. You wouldn't believe how it is to run a recycling program at the elementary level. It's unreal.

Most of this material that comes in comes from a housing project, and it would have stayed on the street. There's no sense of pride in most of our public housing. You go through any public housing area and you see that it's littered, and where there's some litter, there's more litter. If it's clean, usually it's kept clean.

We have a Young Astronauts Program at my school, and this is the second year—I've got to plug this guy. His name is Chief Mike Stanton of the U.S. Navy. He's originally from California. He dropped in—of course, Norfolk is a Navy town—he came by and said, "Hi. I want to start a Young Astronauts Program somewhere." I took him in, and that's what we've been doing. He volunteers his time, a lot of time. We're building a model space shuttle now so that we can do our launch procedures. We can put the whole crew in there. This is all volunteer. The man is incredible. Public people buying into public education; that's where it's at.

At Chesterfield we have an urban garden. We are expanding now for our winter garden to approximately 2,000 square feet. Most of

these children have no experience with any gardening at all, much less watching pumpkins from the flower to the pumpkin, and we have pumpkins now. Also, we have a pretty good crop of loufa sponges coming; they're gourds. We're going to plant wheat and collards in the next couple of weeks. My children like collard greens and so do I, and that's what we're going to grow, and they love it.

They're pretty good gardeners, our children. It has expanded now to the neighborhood, where I have parents who come over and help with the gardening aspect. Many of these parents planted their first annual garden last spring. They had never planted anything. They had no idea what to do as far as taking seeds and starting them in flats, picking them out, and then putting them in the garden. They had no idea, but they're learning right with the children and they're really excited about it.

My point—I could keep going, but my point is, this is a success. It's a small urban school, but I want you to look at why it is a success.

First of all, the National Science Foundation, who supplied proper teacher training, because in the undergraduate programs we do not get adequate core science classes; the State of Virginia, who had funded the program initially; and then of course, the local school system, Norfolk public schools, who had a lot of belief in our program; right down to my Principal, Inez Mason, who is dynamic and very open; down to the community, because without the community support, you don't have anything.

I'm taking a class right now with Dr. Spiva—I want to plug him a little bit; my mid-term is this week—

[Laughter.]

Mr. DONLAN.—to get people working together cooperatively. He just published an article on educational collaboration. This type of collaboration between the various diverse groups of individuals is what makes public education work. Education is not just the schools' problem; it's everyone's problem. Teachers need your support, as well as more money, of course, and we need to replicate successful programs. They don't need to sit out and be little islands in the storm. They've got to spread.

I want to thank you for everything, your support, and hopefully we will realize that good teachers are everywhere; we just need to support them.

Thank you.

[Applause.]

Mr. THORNTON. Thank you. Thank you very much, Mr. Donlan.

Ms. Goodloe, from right here in Washington.

Ms. GOODLOE. Thank you, Mr. Chairman, members of the committee.

This is a great opportunity, and we take it as no insignificant gesture to be able to speak with you today.

Two years ago, this privilege of being nominated, applying for, and being selected as a Presidential awardee for elementary mathematics and science teaching was not available to us; yet, through hard work, persistence, and influence, this award has provided enlightenment, encouragement, and a boost of enthusiasm to about 108 elementary-level teachers.

For this I am most grateful to the National Science Foundation, the National Science Teachers Association, the National Council of Teachers of Mathematics, and the many other cooperating organizations of this project.

We see the results, and we know that it took a whole lot for us to enjoy this week, so we are especially appreciative to the project directors for this. But this spark of enthusiasm that we have will be ignited and rekindled every time we share our experiences with our colleagues, parents, and students. Our most rewarding times have been the brief periods when we hear that they're going to be extended next year, of coming together and sharing with other elementary school teachers from across the country, to share ideas and discuss major issues and propose solutions.

As we pursue the goals of America 2000, we will begin in some States, and continue in others, to address some major issues that are pertinent to science and mathematics teaching at the elementary level, as well as teaching and learning in general.

We are faced with the challenge of curriculum changes. As standards are set in the other areas of curriculum, as they have already been in mathematics through the National Council of Teachers of Mathematics Curriculum and Evaluation Standards, we can help our colleagues see the need for change. They don't always see the need for change. We can help prepare them for the change and encourage their creative involvement; for, as you have seen, on the elementary level we are very creative people.

Because of the inequities—and it has been mentioned— in educational priorities and minority participation that run across State lines, elementary classroom teachers more than any others rely heavily on parental and community support. It is our parents, local businesses, and community organizations that have and must continue to support us in our efforts to teach our children, until governments and legislatures become more actively involved in making education on the elementary level a priority.

More often than not, we are the ones who save every piece of scrap paper, yarn, and string; pick up extra pencils and pads that are left at meetings—

[Laughter.]

Ms. GOODLOE.—collect and store and wash containers, write down and save ideas that are doable in our classrooms, and we know twice as many wholesale, factory outlet, dollar stores, and discount stores than any other kind of teacher. As we move more rapidly into hands-on science and teaching mathematics by doing, we must have the materials in our classrooms, made available to our students. Every elementary classroom teacher must teach it all. Yet we are not all proficient in teaching it all. We would benefit greatly from more support for professional development. Too often it is the elementary classroom teacher who feels uncomfortable, and even guilty, about leaving the classroom for two to three days for a workshop, seminar, or conference; yet, these are the activities that help provide a spark to reinforce our creativity and provide us with more experience and activities to share with our parents, students, and colleagues.

After we've saved up and collected all of this material, we need somebody to help us use it more effectively. We need individuals in

the classroom that are on-site staff developers, not just those who come around once every other semester. But it would be helpful for us to have people in the classroom that can assist us in effectively using our materials and resources.

The National Council of Teachers of Mathematics published a position paper in 1984, advocating mathematics leaders in the elementary and middle schools. These leaders would support, encourage, team, and demonstrate mathematics on a consistent and effective basis in our school districts. That's my position. It's a great one.

Mr. THORNTON. Great.

Ms. GOODLOE. If we do our job well, our best students pursue careers in professional, business, law, and science communities. Our better students are not returning to education. More specifically, they are not coming back to elementary education. We must, then, choose a role which advises, models, recruits, and influences our colleagues as well as our students.

As suggested by the education strategy of America 2000, we already know the direction in which we must go. Our leaders have put forth strategies, proposals, and creative ideas, yet we are aware at the elementary level—and especially in mathematics—that attitudes are hard to change.

We have been inspired this week to meet the challenge of making our existing schools better and more accountable to the needs of our students, not only for their future, but for today, and we need your support.

Thank you.

[Applause.]

Mr. THORNTON. Thank you.

I wish it were possible for everyone in the United States to have had the privilege of being here this morning to hear the enthusiasm, the zeal for education, the success stories in the face of adversity, the suggestions for improvements. It truly is an extraordinary hearing.

Before turning to our panel for their questions, however, I do want to recognize my good friend, Dr. Luther Williams, who has joined the panel, for any comments that he would like to make.

Mr. WILLIAMS. Thank you, Mr. Chairman. No comments. I would rather have the exchange between you and the full panel.

Mr. THORNTON. Thank you very much.

You can understand why Dr. Williams is recognized not only as a great educator—

[Laughter.]

Mr. THORNTON. The gentleman from New York, Mr. Boehlert. Do you have any questions?

Mr. BOEHLERT. Mr. Chairman, I don't have any questions, but I would like to deviate from normal procedure. I have never seen this done, but I think it's appropriate here.

We have witnesses all the time from all over the country who are expert in their fields. They come before the Congress, and we listen attentively. Oftentimes we badger the hell out of the witnesses. We have a distinct disadvantage.

But in this instance, I would like our committee to give our witnesses a standing ovation.

[Standing ovation.]

Mr. BOEHLERT. Now I want to get down to the questions.

[Laughter.]

Mr. BOEHLERT. We all know—incidentally, you are preaching to the choir, so to speak. This committee has been very supportive consistently—this is my 10th year here— of the National Science Foundation. We have worked diligently to get more funding for the National Science Foundation to launch the Summer Institute Program. So we're on your side, to start with.

Oftentimes you hear talk about the possibility, when we're seeking a new direction in education, of going to a voucher system. I'm not particularly enamored with that program. I think there are insufficient resources. I think our first obligation is to public education, and if we deviate from our present course, then we're going to end up with something that is less than desireable because we'll limit the resources for public education.

I would like all of our panelists to address that question. Do you think the voucher system would be an improvement over our present system, or would you prefer that we not go that direction? I know it's a tough question, but these are the type of questions we have to deal with.

Ms. VAN DE WALLE. I have very limited experience with knowledge about the voucher system and how it would work. I have only talked to a few people who have implemented any type of program that is similar to this in their own schools, run by their school district, and they find that it hasn't worked very well, that it creates additional problems.

So with my limited knowledge at this time, it doesn't seem like it's maybe the best answer.

Mr. BOEHLERT. Ms. Wilcox?

Ms. WILCOX. I'm sorry to say that I've never heard of the voucher system. Would you explain that?

Mr. BOEHLERT. Well, in essence it suggests that we should give the right of choice to parents—and I happen to be a pro-choice Republican, and proud of it; I wish some of the people who are advocating choice in education would take a position of choice elsewhere—but in essence, you give a voucher to the parents, and the parents could use that voucher at any school of their choosing, public school, private school, go wherever they want for the education of the child.

Ms. WILCOX. I do not think that it would be a very good idea because you would have, certainly, schools with—you would take away the right to a free education and a good education for all children, because parents would move their children around to where they would want their children to go, and then what are we going to do with some of the children? The schools would be weakened by it. I would not be in favor of it.

Mr. BOEHLERT. Thank you.

Mr. Donlan? And incidentally, you said this is a big deal. Let me tell you, it's a big deal because you are all big deals. You're dealing with our most precious asset, our children, so I am glad to make this a big deal for you.

Mr. DONLAN. Well, thank you.

When you say "the voucher system," my experience is the choice, let the parents send their children to whatever school they want within a given system. Is that correct? That's how we—

Mr. BOEHLERT. Public or private.

Mr. DONLAN. Yes. Yes.

Mr. BOEHLERT. So then it would diminish—

Mr. DONLAN. I was engaged in a discussion about this with my principal last week. She is very negative about it. She feels it would cause too much competition within the school systems. You would see principals recruiting all the best. You would see a whole area of competition open up between the schools, and that in itself would be destructive to the mission of the schools.

There is good that I see in competition, obviously, and I think that it's good to keep teachers on the edge. If I know that my job performance would get me into a better position and a better school, a better setting, more materials, more access to technology, then I'm going to bust my tail to get there to be in the top schools. I think this would set up a cycle where the poorer schools, the schools that are not faring well, would somehow—education is very cycle-oriented — would try to emerge on top. So it would change that way, but—are you with me?

Mr. BOEHLERT. I'm following you exactly.

Mr. DONLAN. So I see some good out of it, but I also think the most detrimental part would open up a whole new problem with competitiveness in the schools. Our children learn competitiveness—no problem—in our society today, where we are just competing left and right. In school we try to teach cooperativeness. We really have to hit that nail hard. That's a difficult one to get through to the children.

I feel that if we go to a school system, especially nationwide, where they can compete for students, I think the problems might outweigh the good there. It would need quite a bit of research before wild decisions are made.

Mr. BOEHLERT. Ms. Goodloe?

Ms. GOODLOE. Yes. I think the voucher system would greatly diminish the public's funds and resources that schools now are already having problems with. Parental support and encouragement is vital, and in the D.C. public schools, some of our schools have some fine PTAs, home-school communities, where individuals support it to the hilt; yet on the other level, there is the opposite extreme.

A lot of communication must be given to our parents about what the voucher system entails in order for it to work effectively. At this time, I don't see it as a positive influence or working effectively in our schools.

Mr. BOEHLERT. Well, my great concern is that we don't have adequate resources now for public education—

Ms. GOODLOE. Right.

Mr. BOEHLERT.—and anything that would give some promise of reducing the resources available for public education would be counterproductive.

One last question, Mr. Chairman. I know others are anxious to get in here.

You are all innovators, and that's why you are here. Have you had any experience in reaching out to the business community in your various areas? It seems to me when you talked, Mr. Donlan, about the Chief who comes in with the Young Astronaut Program, in communities all over America there are some very talented technical people who might be willing to come into the classroom to assist you in your endeavors on an ad hoc basis to help stimulate the youngsters, and also serve as role models. Have you reached out to the business community to help them co-sponsor science clubs or science fairs, that type of activity?

The reason I say this, it always bothers me that—it's changing, fortunately, but we make a big deal out of the quarterback, and that's wonderful; I like football, but I'd like to give awards to the best math student and the best science student, as well as the quarterback, as well as the violin player. We should recognize accomplishment early, and maybe the business community would help you with programs of that nature.

Would you address that, please?

Ms. VAN DE WALLE. In our very small community of about 760 people, we don't have a lot of businesses. At the elementary school we find that we're the last on the list, basically. The community supports financially many of athletic events, and they sponsor a lot of things for the high school, but then there aren't really any funds by the time we get to the elementary school, left for us.

I, instead, have had many come in as speakers. I receive no financial support, but I do have people in the community who come in and speak to the students and tell them about their jobs, or bring in things from work and share that way with us.

Also, I have a grant that we just are studying, that will become active in January, where I was able to get a computer and a modem for our school through this grant. I have a professor in Wisconsin who is going to be telecommunicating with my children in a biotechnology project.

So we don't have access to those people. We grow a lot of corn in our area, so from Iowa they will be sending me a plant specialist to talk to 6th graders. Their concern is that it is very difficult for them to talk to young children, but I've assured them we'll be friendly, so they have agreed to come.

So I do not get financial support, but I do get support from the community in other ways.

Mr. BOEHLERT. Thank you.

Ms. Wilcox?

Ms. WILCOX. Yes. I have used the business community to help with my science fair projects and other endeavors. I will go to businesses, if I am looking for a particular thing, and ask them if they will donate it towards our project. I have had very favorable responses, and they have helped out in our schools in various activities.

We in North Dakota are a little limited in industry and other things, so we do not have a lot of scientists and other people to call on, but I have had people come out to the school and work with the kids and I am continuing to do that. The school I teach at is 45 miles away from the nearest large area, and to convince people to

come out there is quite a bit. It is really great. The kids love it, but I have used it.

Mr. BOEHLERT. Thank you.

Mr. Donlan?

Mr. DONLAN. Well, Norfolk public schools has an "Adopt A School" program where businesses are solicited—sometimes they start it; sometimes the schools start it. Of course, Norfolk is a huge military city. The whole Tidewater area is very military-oriented. Most of the schools have been adopted by Navy ships or parts of the Navy, where the Navy personnel will give their time to come in and help with field days, different fairs, careers, and serve as role models in many of our schools.

In my school we have two adopters, and I'm working on a department in the Navy called COMPTRALANT—this is Chief Stanton's area—to adopt us. We have a local cleaners, and they supply us with clothes, that are left at the cleaners, for our students who are in need. We are also sponsored by the Norfolk Women's Club. They're from another part of the city, and they sponsor a real nice tea for our honor students at the end of the year, and that's nice. It really is.

I have found myself in a position during the last two years, not only a teacher, a resource person, but I'm sort of becoming like a used car salesman in a way—I don't want to slam used car salesmen, but I get on the phone and I try to sell various people if I wanted shovels for our garden, if I wanted wood for our space shuttle capsule; I wanted a tree for our Arbor Day planting, and I got on the phone and I started calling. I hate getting told, "No, we don't have the money, we've already donated our quota for the year." I don't think I should have to do that, but I do it; and as an elementary teacher, as with most of us, that's the sort of thing you do.

Most of the good things that come, as far as the private sector, into my school come from individual teachers who know people in the private sector personally, husbands. I'm the only man at my school. My wife, she donates—she's a dental hygienist, and she helps out with toothbrushes and toothpaste and things like that where they're needed, but that's how we get our support.

I could go on, but I better pass it right along here.

Mr. BOEHLERT. Ms. Goodloe?

Ms. GOODLOE. As you know, Washington, D.C. is a rich area, full of a lot of resources, and we do have programs where we volunteer and businesses get involve.

But let me just continue what Mr. Donlan was saying. At the elementary level, classroom teachers don't have time to go to the phone and stay on hold to talk to a lot of businesses and organizations to get them to come. We don't have the time to sit down after school and write letters and support our program and send them out and wait for them to be responded to. We have 30 little faces looking up at us every day, wanting us to teach to them.

We need that kind of support. It's out there. There are a lot of resources out there, and they are willing and ready to be tapped. We use them for judging our science fairs or adopted programs or volunteers for tutors, but unless we have somebody who can help us do this in the elementary classroom, our first priority is to our

students. So we must meet that priority first, but when we get bogged down with bureaucracy about how people can be used, we don't have—

Mr. BOEHLERT. Well, some of us are trying to help. I talk all the time when I talk to Chambers of Commerce and business communities in general, because I hear them complain that the students that they get from our schools aren't up to their expectations and they expect more. I say, "Well, you'll get more if you contribute more," and it doesn't necessarily mean writing a check.

But I would like to see more business people around the country call up the local school and say, "I've got something that I think I can offer to assist with your education program; let's talk about it," resources to come into the classroom, sponsor science fairs, serve as chaperons for field trips, that type of activity.

Thank you very, very much.

Mr. THORNTON. Thank you very much for your good line of questioning.

I would like to recognize a good friend of mine and member of the committee, Mr. Mike Kopetski.

Mr. KOPETSKI. Thank you, Mr. Chairman, and I share the members of the committee's admiration for these teachers here today. You are the best, the cream of the crop here in the United States, and you should feel very good about this day and these awards.

I have two individuals from Oregon here, one from my district and one from Portland: Diane Price-Stone and Barbara Bannister. Unfortunately, Mr. Chairman, they had to leave to meet with Senator Hatfield.

I do also have a statement that I would like inserted in the record.

Mr. THORNTON. Without objection.

Mr. KOPETSKI. Thank you, Mr. Chairman.

[The prepared statement of Mr. Kopetski follows:]

Congressman Mike Kopetski

Science Subcommittee

Presidential Awards for Excellence in Science and Math Education

October 3, 1991

Mr. Chairman, thank you for holding this hearing today.

So often we find ourselves debating what is wrong, how to fix a problem, or determine how we've failed. Today, we are here to recognize excellence. Personally, this hearing is very exciting. I look forward to Dr. Massey's remarks and a lively interchange between the Members and the audience.

I would like to take a brief moment to recognize the two elementary school recipients from my home state, Oregon. First, Diane Price-Snow, a resident of Corvallis in my District. Diane teaches at Philomath Elementary School. Second, Barbara Bannister of Edwards Elementary School in Portland, Oregon. I congratulate both of Oregon's recipients, you have my respect and admiration.

In closing, I want to stress to all of the award recipients that your experience in the classroom is vitally important to the Members of this Subcommittee and the Congress. We can site statistics, and national averages all day long without improving science and math education in this country. I want to hear from you what works, what doesn't work, how can the Congress support you? You are the experts and I want to learn from you and assist your efforts wherever possible. Mr. Chairman, again, thank you for holding this valuable hearing.

Mr. KOPETSKI. Also, I would like to acknowledge such organizations as the National Association for the Education of Young Children. I have worked with them at the State of Oregon level and at the national level as well in terms of their advocacy in promotion of early childhood education programs.

I am a firm believer that this Nation, if we're going to continue to be a superpower, we have to convince our young people to get involved and to stay involved in the science and math fields. I think that's what's made us great and I know that's what's going to continue to make us great.

I share the gentleman from New York's opposition to the voucher program. We've got enough budget problems in this building and in the State Houses and in the school boards and in the local communities in terms of just providing a decent quality public education for our children in this country, and that's where we should focus our attention.

I recently hired a staff person—I'm a new Member of Congress, and in rounding out our staff, it's interesting to note the background of the last person I've hired, which probably should have been the first person I hired, given some of my committee assignments. It wasn't a political scientist and it wasn't a lawyer, but what she is is a biologist by profession. So there is a career in Government, in the Congress, for people with science backgrounds as well. If you think about the issues that we deal with in health, in defense-related, in the environment, in economics, so many of them are science-related issues. I wish I had studied my science a little better.

I would like the panel—I would like to hear on just one question, Mr. Chairman, and that has to do with class size and the impact in terms of what you are not able to do or what you are able to do, depending on the size of your class.

I think a lot of times people don't understand the importance of how many children you have to educate in a given classroom, and the difference, whether it's 20 or 30 children, that it makes.

Ms. VAN DE WALLE. Class size certainly is a big issue for all of us. We have a space problem, just where we're going to put all the students, and equipment problems, too. We often do not have enough equipment. We borrow from the high schools and the junior high schools, and many of them will share with us some of their equipment to help make do for the time periods when you have your largest class size.

The paperwork becomes enormous. I teach 6th grade, and we have to start at 5th and 6th grade learning how to write essay tests and learning how to write out a science experiment, where you write your observations and you come up with a logical conclusion based on data collected. Those take a lot of time to grade, and when you're going through 180 papers in an evening, trying to get those back to the students in a meaningful amount of time, it's a tremendous amount of paperwork and a lot of hours spent beyond our 8:00 to 4:00 day that we have.

So time, for us, and preparation, just materials, to have enough to go around the classroom, gets to be a serious problem, too.

Ms. WILCOX. I'm fortunate in where I teach. It's a very small elementary school, so I average about 13 children in my classroom.

[Laughter.]

Ms. WILCOX. I knew that would get a response.

However, I have many special need children. The idea of it taking a longer amount of time—in the years that I've had 20 to 25 children, it has been harder, certainly, to put all the materials together to do the activities that I like to do. Just correcting papers—I believe that my time should be spent educating my children and helping my children, so I take all my papers home that night and work through all those to give them back to the children.

But if I were to have a larger classroom, I certainly know it would be much harder to do all the activities that I do because it would just take more time to put the materials together.

So, yes, I have seen—my own children have been in classrooms of 35 children in a room, and I can notice the difference.

Mr. DONLAN. Well, I'm sure at the university level we have all encountered huge class sizes, where your professor is in an auditorium and there are a couple of hundred people and they talk for an hour and a half and then test you on something out of a book, right? And it works, because you're responsible for what you're going to learn.

It's a little bit different at the elementary level, as we all know. In my particular setting, we started out the school year with two less teachers than last year due to budget cuts. We are a very vocal school. We raged, and we have two more teachers now, to cut our class sizes. So it's the squeaky wheel syndrome there.

If you're an adult, you can learn with other groups. We all learn differently. There are all different modalities of learning and different styles. As children, they don't know how they learn, and we have to be able to work with children on an individual basis. When you go from 15 to 20 or from 20 to 25, from 25 to 30, there is no way that you can individualize instruction to students. Once you get to 25 plus, forget it. You become a paper-pusher, pretty much, and it doesn't work. You cannot give your students a really adequate amount of attention. Of course, if you start hiring and expanding the teacher pools, raises would be fewer and father between, with our already extended resources. So I don't know how you're going to do that one, but good luck.

[Laughter.]

Ms. GOODLOE. The issue is class size, and that's definitely important. When we talk about meeting the needs of individual students and cooperative learning and grouping for instruction, when you have 20 students, one more may cause you to plan a little more. When you have 28 and two more come in — and they do that consistently, all during the year—when you get to be overwhelmed, all of the ideas about changing instruction and new curriculum become secondary or nonexistent because you're trying to meet the needs of those individual students.

Class size—and you heard the groans when you heard 13, which is nice, but it's a special needs class—when you're dealing with elementary-level students, on the elementary level, none of them understand why our counterparts in secondary can't perceive that. On the elementary level we teach the children, not the subject. We call ourselves mathematics teachers or science teachers, but we're teaching children, and we're teaching them everything: goals and

behavior, values. All of that comes into play in the classroom. Sometimes some things get secondary to what we want our children to know and understand.

If you could do something to lessen the class size for all of us—15 to 20 is not too bad.

Mr. KOPETSKI. Thank you.

Thank you, Mr. Chairman.

Mr. THORNTON. Thank you very much for an excellent line of questioning.

Mr. Fawell?

Mr. FAWELL. Thank you, Mr. Chairman.

We have a fantastic chairman here who has withheld his desire to propound questions and views, and that's not often the case with chairmen. I appreciate that, because I do have to run off to a meeting that I should be at.

I simply want to say thank you very much, again, for the tremendous testimony that you have. I have appreciated your views on the voucher system, with which I generally agree also, and the comments. It's nice to say, "Well, competition is the name of the game," and so forth and so on, but it doesn't quite work, it seems to me, in public education. We are all children, regardless of handicaps, mental and/or physical, and for everybody who shows up at that school, your job is to teach them.

I think the comment was made, that we also teach cooperativeness as well as competition—and you get an awful lot of competition elsewhere. I think, too, your positive views on education were very good.

My wife has taught elementary school for 20 years. My father-in-law was a superintendent of schools for a number of years, so we are somewhat public school-oriented.

But I think there's an overkill. It's good to have a critique, I think, from the Federal Government about education in general, and I think we've caught the attention of the Nation. But too often, I think, there is such an overkill. In my own district, in west suburban Chicagoland, for instance, we have very fine—in everything that I can see— both private and public schools. Now, I hear some of my colleagues berating public schools, and that may be overkill. So it's good to hear the good, positive attitudes that you do have.

I overlooked, Mr. Chairman, mentioning the names of the people from the great State of Illinois who are here. Of course, Ms. Van De Walle is center stage and gave some beautiful comments. But we also have Linda Eileen North from Carbondale—I don't know if she is here—and Carol McGee, is that right, from Urbana, Illinois. These are far distant from my district, the centerplace of the universe which, as you know, is the 13th Congressional District.

[Laughter.]

Mr. FAWELL. And then Robert Grimm is from Pallatine, which is near my area, and John Porter wanted me to say to Mr. Grimm, if he is here, that he apologized for not being here, but he had, I think, three or four meetings that had been scheduled, so he was not able to be here.

I am not going to take the time of the committee for this one question that I wondered about, but it was stated, I think by Ms. Goodloe, that the best students are not coming back to education,

especially at the elementary level; and yet, I see in this room just fantastic people who came back to education and came back to the elementary level. My question was, well, how did you folks get here? And if you got here, could we just duplicate what got you here? Or are you such special, special people that it isn't going to work?

Maybe just one of you might want to take that challenge and respond. I'm going to have to pop along here.

Mr. DONLAN. I'll respond to that one.

Money does not drive me nor my personal ambitions. I like having fun. Working with children is the bottom line; for me, it's fun. When I interviewed for my first teaching job they said, "Why did you become a teacher?" I said, "I love children." And the lady finally said, "Why did you want to become a teacher?" I said, "Because I get my summers off." I've been teaching for 10 years and I've had one summer where I did not either work or go to school, so I threw that out the window. I enjoy what I do.

The way you get professional people into the classroom, of course, you have to treat teachers as professionals. Well, we need respect from our Nation, quite frankly. I am involved, through Old Dominion University, in a military transition program, taking people who are retiring from the military and training them to be teachers. The classes—I get two or three classes every semester where I am asked to come in and speak to the people coming out of the military. I give them a sales pitch, because they are mostly men, and they are all going into secondary education. No one wants to come down and work with the little kids. I get in there and really pump them up and try to get them to change their minds.

We need that. Men, for role models, are needed because we have so many single-parent families and so many female heads of household in our Nation that we need men to interact with our little children. It's very important.

Ms. GOODLOE. Can I respond to that, Mr. Chairman?

Mr. THORNTON. Yes.

Ms. GOODLOE. When I thought about coming into elementary education, I thought about what inspired me. It was an elementary teacher. I suggested that one of the things that we need to do is to help our colleagues and to become role models ourselves, because I thought at one point that it wasn't—of course, it's not the money, but it wasn't something along the way, but it was way back in elementary school. And when we hear individuals talk and testify, as it were, about the kinds of experiences they've had in education, there was a teacher. It may have been someone on the secondary level, but more times than not it was an elementary teacher, someone at that lower level, who inspired or set the spark.

In my own experience it was a classroom teacher, and also my sister, who was a State awardee winner last year. I was able to bring her along with me this time. That kind of motivation and model for students—although we don't often see it at the elementary level, because by the time they graduate and finish college we may be retired or away, but we see and hear them come back and say, "Didn't you teach me?" or, "Wasn't it you?" Those are the kind of remarks that we hear along the way. So we don't know, as

we are going about our daily routine, how we inspire our students unless we make it a priority in the back of our heads, if you will, to actually inspire someone to say, "Yes, you can do this."

Mr. FAWELL. It has to be rewarding.

I will just close with this comment; I am in a number of parades. In Naperville, Illinois, where I live, there is a large Labor Day parade. I always have my daughter, who teaches kindergarten, attend it as we go along. And the kids, of course, love these parades. Everybody recognizes my daughter, and hardly anybody recognizes me. Everything is "Ms. Fawell, Ms. Fawell, Ms. Fawell."

[Laughter.]

Mr. FAWELL. So at least the car in which I'm sitting is the center of attention.

[Laughter.]

Mr. FAWELL. Thank you very much, Mr. Chairman.

Mr. THORNTON. Thank you very much

You know, we've had some real nuggets, along with a generally excellent presentation today; nuggets like, "We teach the children, not the subject." "We need respect from our communities and our Nation." "We need to accelerate the fairness with which laboratories and equipment is available to different institutions." But most of all, I've been hearing the need for cooperation, for involvement of parents and communities, the Federal Government, all institutions, in addressing this most important aspect of our society.

I truly believe that the lifelong process of education is the most vital element of a civilization if, by that, you take the word "educe," to pull out of, or to pull through, literally, and recognize that that process begins in the elementary schools in the one-on-one contact between teacher and student. How fortunate we are to have great teachers in our country, and what a great challenge it is to make the profession so attractive and recognized as being so vital that we encourage those best students today to want to go through their educational process and return to share with young people again. It's an exciting challenge.

One thing that troubles me is that I don't know how we connect it. How do we pull it together? How did you all learn about the availability of programs from the National Science Foundation? Who tells you about innovative ideas and programs that are in effect all around the country? What means do we have of sharing ideas and taking the best that bubbles up in the different schools around our country and making sure that those become examples for all of us in this country?

I would like to ask the panelists to comment on that general line of questioning.

Ms. VAN DE WALLE. I started attending elementary science teacher conventions because my mentor, when I was working on my master's degree, encouraged me and told me that I had to present. That was part of my master's program. He said that I had to go to this convention and make a presentation. I had never been there. And as I started meeting other people and getting away from being just in my local school building, and started branching out by taking classes and attending, I started seeing that there was a big discrepancy between what I had and other people had. I started asking questions, and the more questions I asked, I went from

being a basically shy little wallflower into, "What do you mean, you have it and I don't? Where do I find out?"

So I feel that I've had tremendous professional growth through this by asking questions and nosing around. The person who has served as my mentor back home at the university, he nominated me for some projects, so I had someone in my life out there who has said, "Carol, you've got to do something else besides just being in the classroom."

I think teachers often do not recognize that sharing with other teachers is a very, very important part of our job, and we are never told that. We're never told that we're good enough or that our ideas are good enough to share until late in life, and some people never hear it.

So I think by getting out and getting into professional organizations—that's basically how I started finding out about grants, becoming involved with the first one, which was then the impetus to follow through and find out where there was other money, learn how to write grants, and that type of thing.

Mr. THORNTON. Well, I take it, then, that the answer to the question of how you find out about successful federally- funded programs and other programs around the country, is that someone must stimulate the question, that you have to begin to ask and be aggressive in asking where those programs are.

Ms. Wilcox?

Ms. WILCOX. That was the same way I basically got involved. Someone encouraged me to apply for a program that the NSF was funding. Then when I got involved in that program I thought, hey, this is great, so I started going out looking for other programs. I also worked through our Department of Public Education and I said, "I want on the mailing list of anything that comes across," because many times they go to the schools, and then they are not filtered down from the superintendent to the actual classroom teacher. So I have requested myself to be on the direct mailing list from the Department of Public Instruction. When I find out about something, I spread it out to the other teachers, as many as I can. And through other organizations, I go out and I hear about programs going on, and I go and ask.

So you have to have some initiative on your own. But once you're involved in one of the programs, it seems like it just mushrooms and carries.

Mr. THORNTON. Okay.

Mr. Donlan?

Mr. DONLAN. Well, it's really an underground movement.

[Laughter.]

Mr. DONLAN. No, I'm just kidding you there.

Professional organizations—when I look at my children, in science magazines, I receive anything that says "free." I have a little form letter in my computer and I just put in the appropriate couple of sentences. Anything that is free, I go for it. I just received lots and lots of mailings from all over the country and the world. You just reach out and get it anywhere you can.

Mr. THORNTON. Which of these do you find to be most beneficial?

Mr. DONLAN. Actually, the Virginia Association for Science Teachers, because it is at a local level. It is part of the National

Association of Science Teachers. And then we have a regional group, as well.

Whenever you can get together with your colleagues and talk informally and brainstorm and get ideas, get addresses, phone numbers, that's where we get it.

Mr. THORNTON. Do you find the National Science Foundation responsive to your inquiries and your questions?

Mr. DONLAN. You know, last night I asked a gentleman— I'm terrible with names so I won't say his name, because I don't remember it—I asked him, "You know, I'd really like to be able to tap into some NSF funding. I've got some good ideas, and I want to be able to write some grants to see if I can fund some of my ideas and follow through with it. Do you offer classes on grant writing?" And he just kind of looked at me like, "Hmmm, no, we don't, you've got to figure it out on your own."

I find the National Science Foundation very receptive, actually. In my own personal education, it's been fantastic. It's gotten me into the program that I'm in. It's gotten me my advanced degree, and it's really gotten me rolling.

I would say that you could possibly triple your budget in Congress to the NSF, and they could triple the amount that is given to the teachers. Let's talk big.

Mr. THORNTON. Dr. Williams, do you have any comment on that?

[Laughter.]

Mr. WILLIAMS. No, sir.

[Laughter.]

Mr. THORNTON. Ms. Goodloe?

Ms. GOODLOE. I always feel like I represent the classroom teachers. Those that are in my building, I really would like for them to see a lot more of the activities that go on in professional development.

But on the elementary level, we're changing that. It's changing now, with this award being presented to elementary teachers. On the elementary level there's not a lot of—as much as, let me say—opportunity for teachers to get out of the classroom and do some professional development. When you get to school early and stay late and work all day without a break, with 28 or 25 students, by the time you hit the weekend it becomes your time.

Professional development ideas, as we've heard, come through mentors, come by way of what we get passed down to us that might filter through from the administrative offices. We need to have a networking of elementary teachers who know about these ideas.

Again, some of us here in this room, although we're enjoying this week in Washington, we're going to be faced with the reality of reteaching when we come back, because of whatever substitute was in our place. So we always are thinking about our children and how to prepare them more.

But getting to professional development activities, to doing more workshops and seminars, is really important.

Mr. THORNTON. That brings up the question of in-service teaching preparation courses. Would it be helpful if you had some in-service people working with you in your classes so that they could learn from you?

Ms. GOODLOE. That's the key, to have them in the classroom with the teachers. We are doing, in the D.C. public schools, some in-service changing of our curriculum, and we have some classes after school. If we can't get our teachers in there on time to do some hands-on things to keep them busy, at 3:30—you've got to grab their attention right away; otherwise, they are wiped out, as a lot of us are.

In-service in the classroom—

Mr. THORNTON. In the classroom.

Ms. GOODLOE.—right along, that would be excellent.

Mr. THORNTON. You know, teacher professional enrichment is something that is very important to me as an educator, a former educator. I have joked that the reason I left the presidency of the University of Arkansas to come back to Congress was because I got tired of all the politics.

[Laughter.]

Mr. THORNTON. But as a former educator, I know that teacher enrichment is awfully important. Do you all have any comments on how we might address that?

I'll start with you and go back this way.

Ms. GOODLOE. I'd like to make it so that teacher enrichment becomes important at the elementary level. I think the classroom teachers are so often looked at as baby-sitters, and we're not. We are teaching. We're in there teaching consistently. Teacher enrichment programs are vital to giving us that pat on the back that says, "You're doing some good work. Let's improve it. Let's share your ideas." The greatest times that we have had this week is the sharing of what's going on in Washington State and New York and New Mexico, all across the country, where we can do those kinds of enrichment activities and where we get to share the ideas. You know how we jot things down. We're ready to try that. That's something that we want to do more of. That would be an improvement.

Mr. THORNTON. Thank you.

Mr. Donlan?

Mr. DONLAN. Well, it's easy to enrich a school teacher. A good teacher can learn just about anything. The key there is to be able to impart that knowledge to our students, obviously.

If you want to enrich teachers, we have to have time to do that, and I believe that has come up quite a bit. I'll be enriched any way you want to give it to me.

[Laughter.]

Mr. THORNTON. Let me ask this. Has this experience here been beneficial to you, in addition to the recognition of the award itself? Do you think this has been good, to get together and share with people from all over the country?

Mr. DONLAN. Oh, it's incredible. I forget the lady's name from Samoa. I cornered her yesterday and gave her my address. I would be willing to switch with her for a year or so. I'd love to go to Samoa.

But to start mailing different things, like acorns, leaves, natural things from our environment in Norfolk, to Samoa, and she can send me things, so that my students can learn there. It's great. Teachers need to be able to get together. The wealth of information

that we each have, just waiting to be shared—everybody is different and we all have something to say.

Mr. THORNTON. Ms. Wilcox?

Ms. WILCOX. I really think teacher enrichment is vital to our enthusiasm for continuing in education. Many times teachers get burnt out. If you are able to take part in programs that enrich you, it just carries over into your classroom with your enthusiasm to go out and just try those new things. I really think it's vital.

This week is just a tremendous week to share and find out all kinds of ideas. We are basically the same, but yet we all have new ideas. Luckily I had a superintendent about five years ago who said, "You know, the only way you're really going to be enriched, you'll have to branch out, you'll have to leave your State and share the ideas that you're going to share and get into programs that may be in Colorado; or maybe you're going to be able to go to a National Science Teachers' Convention in Atlanta." It's just unreal what that does to you, how many new ideas. You come back, and then you share it with your teachers in your own area. It's just a vital part of our whole education after we leave college. We need it.

Mr. THORNTON. Let me say that if at any time—I should have made this announcement earlier—any member of this group of teachers assembled here believe they have something that you would like to add to the discussion—it happens that you have a great panel, but every one of you is a professional, and your ideas are important. If you have anything that you would like to say on teacher enrichment or class load or any of the questions that have been discussed, I would appreciate it if you would not all stand at the same time, but let me see your interest in making a statement, identify yourself, and tell us what your views are.

In addition to that, I would very much appreciate any of you who would drop us a note, give us a letter evaluating the week, evaluating the discussion that we've had, pointing out a success story in your own school, giving something to share with this committee, because we will be preparing a record of this and sharing it with our colleagues. And that kind of communication, without objection, will be made a part of the record of this hearing.

[Information to be supplied follows:]

723 Floral Avenue
Terrace Park, Ohio 45174
October 17, 1991

The Honorable Ray Thornton
Subcommittee on Science
Committee On Science, Space, and Technology
U. S. House of Representatives

Dear Representative Thornton,

Exactly two weeks ago this morning Dr. Massey and four of my colleagues were testifying before you about the role of the National Science Foundation in their careers and their ideas on the improvement of science instruction in the United States. You offered the rest of us an opportunity to write to the subcommittee, and I am accepting your offer.

I attended two summer workshops of six weeks and eight weeks in 1959 and 1961 that were funded by the National Science Foundation. These were completely funded, including stipends. They were open to elementary teachers and administrators. They were influential in my becoming an elementary science specialist. Since then there have been very few such opportunities for elementary teachers. The awards we have just received were available to secondary teachers since 1983, but only available to elementary teachers for two years.

Secondary science programs such as physics, chemistry, biology, and earth science, and their teachers are more easily identifiable than are elementary science programs. There are fewer schools and teachers to deal with at the secondary level. However, if our goal is to teach the scientists of the future and to be first in the world in math and science, we will be ineffective if we do not put major emphasis on the elementary school children of the nation. In fact, elementary school teachers know that pre-school programs such as headstart make a huge difference in what we can accomplish. The younger we start, the better the result. There were kindergarten teachers, science award winners, with us in Washington.

Most teachers want to do well by their students, but many are ill-prepared to teach science. Most of us who came to Washington learned much of what we teach and how to teach it through summer and inservice programs. Most of us are motivated to go back to our parts of the country and lead such programs, as our time permits. There are, however, thousands of teachers to reach. It will take time to reach them. Inservice programs in the schools which model effective teaching will reach many who are unable to take the time to go to summer programs even if they could afford them. We need to identify and give increased support for the teachers who are willing to model effective teaching. We need to continue and expand the number of programs for primary and elementary teachers.

It is a basic tenant of good teaching practice that we motivate more by reward than by punishment. That is not to say that there isn't a place for clearly defined consequenses for certain actions. However, there must also be rewards. Positive self-esteem and a positive self-image are essential for success in school. Success leads to positive self-image and more success, and failure leads to negative self-image and even more failure. If we start early enough rewarding students and building up their self-esteem, we find that many students learn to see themselves as successful, and strive to do well. Repeated failure leads to students who define themselves as failures and don't try, or drop out. This happens at all ability levels. Once a child gets a negative self-image - even a very bright child - it is very hard to turn it around. The same principle is true at all levels of education, even schools. What happens to the school which is struggling but having difficulties because of various circumstances, many of which are beyond the teacher's control? The community, teachers and students have a negative image of that school. They may all give up really trying to be better. The students in that school who succeed will have to do so in spite of the school.

Some questions were asked about vouchers. If we had vouchers, what would happen to a school such as I just described? Some students would take their vouchers and choose to go elsewhere. The school would lose already limited funds. The students remaining might be unable to leave because of family situtations, transportation, or other factors. How can those teachers possibly transform that school? Their only motivation will be to transfer out themselves. The students remaining will see themselves as failures in a failing school. You know where they will end up. Vouchers are counterproductive to good public education, and may actually destroy it.

If we apply the carrot to that school, what might change? We need to identify some of the neediest schools and work to improve their self-image. Give these schools the basic tools to work with, and reward them if pupil achievement improves. Build new libraries and labs in the schools that raise their scores. Reward the teachers who are willing to take extra training for self-improvement. Paint and clean and work to build a sense of pride in students for their school and in themselves. The students will see themselves as success oriented. The teachers will see student achievement, classroom materials, rewarding programs, and community support. Not only will we produce scientists. We will produce readers and employable, tax-paying citizens. This will take teacher motivation and administrative leadership to accomplish. It will take innovative colleges. It will take legislators such as yourself, sir, who listen carefully and then try new ideas.

Sincerely,

cc/Rep. George E Brown, Jr.
Rep. Rick Boucher
Rep Robert S. Walker
Rep Ron Packard

Mr. THORNTON. I wanted to extend that invitation before I went on down the line here. You all be thinking about it. If you have anything you want to get off your chest, now's a good time to do it.

Ms. Van De Walle?

Ms. VAN DE WALLE. You could tell this was going to be a long one.

Mr. THORNTON. I knew it was going to be long because you've had lots of time to think about your response.

Ms. VAN DE WALLE. Teacher education and in-servicing is something that I've been real concerned about. Working with an honors project over the past six years in Illinois, it's something that has come up quite a bit.

I work with training teachers and helping them to get into leadership roles, and then many of us—there is a cadre now of almost 70 of us that have gone through these programs, and we find that what was happening is that the door is being closed to us through our administration. It isn't just in the small schools; it's the suburban, the urban, it seems to be a trend, in our State, anyway, that those of us who have been called on to go out and in-service teacher in other school districts are finding that we're not being allowed. We have been told that we are hired to teach in that building, and even though the other school is paying a substitute and taking care of those fees, that's too bad, you can't go. In fact, the man who won this award last year had a hard time getting five days off, and I'm sure that that happened to some other people in this room right now. They don't want us out of the room.

It's a severe problem. I know they questioned me. When I want to go to the National Science Foundation, they will say, "You may go, but you're paying your own way." They will only allow me the time off, begrudgingly. And I have to very, very much budget my time. I've been told, "Don't plan to be gone too much this year; you have to stay in the classroom."

So there are people out there, many people, who have been trained, who have the skills to go out and help other teachers, but they're not being allowed to do that.

Mr. THORNTON. Thank you for that insight. I deeply appreciate it.

Yes? Please identify yourself.

Ms. DONIVAN. I'm Marilee Donivan.

[Remarks made off-microphone.]

Mr. THORNTON. Would you mind? Our reporter is having great difficulty in making a transcription of your comments. I would appreciate it if you would use the microphone so that she can do that.

I'm not going to embarrass you all, if you want to just stand and sing out a real short statement from where you are; that's fine. If you want to come up and say something, that will be fine, too.

Go ahead.

Ms. DONIVAN. Thank you very much. Would you like me to start over?

Mr. THORNTON. Yes, please.

Ms. DONIVAN. All right.

I am Marilee Donivan from McCall, Idaho. One of my outstanding colleagues is Barbara Morgan, who is the NASA Teacher in Space-designate. Everywhere I travel, when people learn this about

my school, and that she is one of my colleagues, I am asked, "Is she ever going to go up in space?" And it has been five or six years now.

As teachers, when the Teacher in Space program was first anticipated, we saw tremendous excitement and electricity among our students and among our communities and, of course, among us as teachers. We were so thrilled at the prospect of having a real teacher go into space and perform a real lesson that children all over the Nation would see.

I have never seen anything that has created that kind of enthusiasm and spirit of adventure and excitement for science since then.

So I am here to just ask respectfully that your committee might urge NASA, particularly the Administrator of NASA, Admiral Richard Truly, to make it a high priority to put our teacher in space. I think it would do a world of good for our science education.

Mr. THORNTON. I thank you for that statement.

Are you standing for a reason?

Ms. WHITTINGTON. I am Lynn Whittington from the State of Maryland.

Mr. THORNTON. Lynn Whittington from the State of Maryland.

Ms. WHITTINGTON. [Remarks made off-microphone.]

[Applause.]

Mr. THORNTON. For the purpose of the record, let me paraphrase. You have given us an example, where in your own class you have 37 students, and that an associate of yours from Pennsylvania also has 37 students in her class; that in addition to the observations which have been made generally today, you call for a national theme of support for elementary school education, as well as the broad goals and objectives, and that that theme should include the cooperation of State and local governments with the Federal Government, and also the cooperation of families and communities of interest.

Have I summarized your statement?

Ms. WHITTINGTON. [Remarks made off-microphone.]

Mr. THORNTON. Very good.

Two hands here.

I do want to recognize a Member who came in a few moments ago, Mr. Gilchrest, whose opening statement has been inserted in the record at the beginning of the hearing.

I want to recognize you and invite you to join in this colloquy at this time, and we will take such questions as you may want to ask.

Mr. GILCHREST. Thank you, Mr. Chairman.

I don't want to say too much because I know you folks out there don't always get the opportunity to have us listen to you. It's usually the other way around; you listen a great deal to what we have to say.

I will say very quickly that at this time last year, I was a public school teacher in Kent County High School on the Eastern Shore of Maryland, and I taught in the public schools for most of my life. I, too, had 37 students in a contemporary issues class, but I can sympathize with you all because several years ago I wanted to see what it was like to be an elementary school teacher, so I just took one day where I switched with—I think it was a 3rd grade teacher. Let

me tell you, your pay should be triple that of the high school teachers.

[Applause.]

Mr. GILCHREST. I was thoroughly confused with lunch tickets, with bathroom problems, with all kinds of things. So you have my sympathy.

I would just run through some quick things. I would like to hear what my colleagues here have to say.

You know, when you were talking about, "How do you know about the National Science Foundation programs? How do you know about all these things?" They don't always necessarily filter down. I'm aware that they don't always get from the National Science Foundation, to the superintendent, to the principal, to the individual school teachers. And if there is any profession where you need redundant activity, repetition, repetition, repetition, it's in the educational system.

So certainly, you need to enquire with the superintendent, with the principal, but it shouldn't be a hit- and-miss kind of a thing, where the more aggressive teacher has access to that information.

I think what I'll do, Mr. Chairman, is send a letter to all my colleagues in the House, asking them to send a letter to each one of their superintendents, stressing what is available from the Federal Government, and maybe even to each one of the principals in their particular districts, stressing that that information has to flow down to the school teachers.

Ms. Goodloe, you talked about—and it rang so clear to me—by the end of the day, unless someone knows what it's like inside the classroom, by the end of the day—you know, some people say, "Well, the teachers get off at 3:00 o'clock" or "They get off at 3:30," you know, they don't think about the homework. But by the time you walk into that building, until that last bell rings, you are on task 100 percent. This discussion right here, as extreme as it is—and it is pretty extreme sometimes—at least, when I leave here, before I go to the next thing, if I want, I could stop for a second, have a half a cup of coffee, carry on a few minutes of conversation, but when you're in the classroom you just can't say, "Hold on, kids, I need a cup of coffee. I just want to relax and talk for a few minutes." You can't do that. It doesn't happen. So by 3:30 you are tired.

And you also talked about renewing yourself with in- service, with a variety of activities so that you can be exposed to new information, you can be rejuvenated, because it is in the classroom where learning takes place in the public school system, nowhere else. It is in the classroom. You can have all of the greatest administrators, all of the greatest programs in the world, but the learning—the start—is in the classroom. So that rejuvenation is vitally important and incumbent upon the administrators in that school district, the parents, the businesses, to recognize—you're talking about a national theme, "Teachers are the Key to our Success." In this day and age, knowledge is our destiny right now; not political expediency or a host of rhetoric. Knowledge is our destiny, and we get at that destiny through the teachers.

So that's a wonderful theme to put in there.

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The teacher from Idaho—back in 1986 I was trying to get a year's leave of absence, which is legal in our school system; you can get a year's leave of absence—because I wanted to go to the Idaho wilderness with my family, for a variety of reasons. I had an opportunity to work with the Forest Service, a biologist, a whole host of people. We could have made a series of studies that I could have created and crafted and brought back to my own school system. They wouldn't give me a year's leave of absence because they said it wasn't appropriate for my curriculum.

You know, the narrow-mindedness of these, I suppose, well-meaning administrators sometimes really grabs you. Well, I went. I resigned my teaching job and I went to the wilderness of Idaho and I stayed there off and on for a year, and I came back just enthralled with the wonderful things that I and my family had experienced.

So if there is any profession that needs interaction and in-service and rejuvenation for the purpose of instilling and transmitting that knowledge, so necessary for the next generation, it's school teachers. When we talk about the infrastructure of the United States we think about roads and buildings and bridges. What's the most important infrastructure of the United States? It's education. That's the bottom line.

I will stop. Sometimes with a captive audience, the politician really just keeps right on going. But I wanted to mention those things. I, for one, will continue to stress that I'm trying to hit all the schools in my district before the next election.

Mr. THORNTON. Thank you, Mr. Gilchrest. I appreciate it very much.

Mr. GILCHREST. Thank you, Mr. Chairman.

Mr. THORNTON. We have been advised that some of the teachers here have other appointments to which you must go, and I don't want to stand in the way of changing our class, but we also have three or four people who have signalled that they would like to make a statement for the record. I will take at least two of them.

Your hand—I'll take three, these three right here.

Mr. SPITZ. Thank you, Congressman. I am Larry Dorsey Spitz from Pueblo, Colorado. I teach at Hillbeck Elementary School. It's based on John Goodland's "House" concepts. Because of that, I am able to be here today, and I need to recognize that.

I have heard today that changing attitudes is a significant option that we need to address. I have also heard people here today talk about "us down there," the lowest level.

Change begins with each one of us. We have our own mindsets. I taught for 17 years at the secondary level, and fortunately, I was able to get involved with the House Project. My friends at that level said, "How is it down there?" And I returned the favor by saying, "It's great up there." We are the beginning at the elementary level of great things to come. We are the foundation. We are number one, and that attitude needs to be brought about amongst ourselves.

Thank you, Congressman.

Mr. THORNTON. Thank you very much.

Please identify yourself.

Ms. DAVISON. My name is Kim Dawison. I teach 3rd grade in Kalamazoo, Michigan.

I would like to address the issue of poverty among our children, because poverty really is an educational issue. If they don't have safe and adequate houses, they can't stay put and stay in our schools. They have to move. They have to go elsewhere. Some years I've had 30 and 40 percent turnover because of students having to move out of houses that were burnt out, or they were evicted because they couldn't pay their rent.

Also, the issue of clothing. In Kalamazoo the winters are fierce. We have children coming to school without winter clothing. We, as teachers, go out and find it, but it's absolutely an educational issue—shoes, boots, hats, mittens, gloves, all those things.

Also food, nutritious and appealing food. We feed the students, but if you feed them spinach and pizza—you know, it's not going to get eaten. We raised worms out of our school lunch garbage last year, and they ate an awful lot of spinach and green beans. It was inedible; I wouldn't have eaten it.

Health care—not only physical health care, but psychological health care; employment for their parents, and employment that they can look forward to so that they have hope for the future.

Mr. THORNTON. Thank you very much. I think that deserves applause.

[Applause.]

Mr. THORNTON. One more statement, then we must reluctantly bring these proceedings to a close.

Ms. MIDGETT. Mr. Chairman, I'm Carol Midgett from Southport, North Carolina.

My wish is that we recognize assessment as a viable and vital alternative to fill-in-the-blank testing, both as a representative group, legislative group, and as American citizens.

We as teachers realize that accountability is more important to us than any other group of people in the world, and we also recognize that are much more effective and efficient methods than testing.

Thank you.

Mr. THORNTON. Thank you.

[Applause.]

Mr. THORNTON. On that note, I would like to once again thank not only those excellent teachers who made up the panel, which responded so well to our questions, but also to each of the honorees. Each of you is truly an extraordinary individual. The act of creativity occurs in each human mind. It is not a one-time act, once registered being available for all time, but each student must learn again the creative thoughts, the opportunity to understand the world in which we live, and the enthusiasm and excitement that I sense in this room is one of the high points of my return to Congress.

I want to thank you very much for participating in this hearing, and the hearing is adjourned.

[Applause.]

[Whereupon, at 12:22 p.m., the subcommittee adjourned, to reconvene at the call of the Chair.]

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48-686 (64)

ISBN 0-16-037004-3